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10/050,309	01/16/2002	Joshua M. Cobb	83866NAB	8719

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EXAMINER

KOVAL, MELISSA J

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,309

Applicant(s)

COBB, JOSHUA M.

Examiner

Melissa J Koval

Art Unit

2851

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-75 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 0603.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the dichroic separator used as a light source in claims 10 and 28 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6-11 recite the limitation "said light source" in lines 1 and 2 of claims 6 through 9, and line 2 of claims 10 and 11. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

Art Unit: 2851

granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, 8-10, 14 18-20, 39, 40, 43-46 and 48, 49, 51, 54-57, 59, 61, 63, 66, 67, 69, 71, 73 and 74 are rejected under 35 U.S.C. 102(e) as being anticipated by Mihara.

Refer to Figure 1 of Mihara, for example.

Claim 1 sets forth: "A projection apparatus for projecting a multicolor image comprising:

- a first light modulation assembly comprising:

- a first spatial light modulator for modulating light having a first wavelength and which forms a light source to form a first image (light valve 201R);

- a first magnifying relay lens for focusing and relaying said first image (convergence lens 203 R);

- a second spatial light modulator for modulating light having a second wavelength and which forms a second image (light valve 201G),

- a second magnifying relay lens for focusing and relaying said second image (convergence lens 203G),

- a third spatial light modulator for modulating light having a third wavelength which forms a third image (light valve 201B);

- a third magnifying relay lens for focusing and relaying said third image (convergence lens 203B);

Art Unit: 2851

a dichroic combiner which form a multicolor image by combining said first, second, and third images (synthesizer prism 101); and

a projection lens for projecting said multicolor image (projection lens member 100).”

With respect to claim 2, again refer to light valves 201R, 201G, and 201B, respectively.

With respect to claim 4, refer to column 4, lines 48 and 49.

With respect to claim 8, refer to laser sources 206R, 206G and 206B.

With respect to claim 9, refer to column 4, lines 55 through 58.

With respect to claims 10, 14, 20 and 71, again refer to synthesizer prism 101.

With respect to claims 18 and 19, see Figure 1.

Claims 39, 45, 46 and 48 are rejected for essentially the same reasons already applied to rejected claim 1. The method for projecting the multicolor image is determined by the structure provided in the projection apparatus. Therefore, claim 40 is rejected for the same reasons already applied to rejected claim 4. Claim 43 is rejected for the same reasons already applied to rejected claim 8. Claim 44 is rejected for the same reasons already applied to rejected claim 9.

Claim 49 sets forth: “A projection apparatus comprising:

a first light source having a first wavelength (laser source 206R);

a first spatial light modulator for modulating incident light from said first light source to form a first image (light valve 201R);

a first relay lens for focusing and relaying said first image (convergence lens 203R);

a second light source having a second wavelength (laser source 206G);

a second spatial light modulator for modulating incident light from said second light source to form a second image (light valve 201G);

a second relay lens for focusing and relaying said second image (convergence lens 203G);

a third light source having a third wavelength (laser source 206B);

a third spatial light modulator for modulating incident light from said second light source to form a third image (light valve 201B);

a third relay lens for focusing and relaying said third image (convergence lens 203B);

a dichroic combiner which forms multicolor images by combining said first, second, and third images (synthesizer prism 101); and

a projection lens for projecting said multicolor image (projection lens member 100)."

Claim 51 is rejected for the same reasons applied to already rejected claims 4 and 40.

With respect to claim 54, again refer to laser sources 206R, 206G and 206B.

With respect to claim 55, refer to column 4, lines 55 through 58.

With respect to claim 56, refer again to convergence lenses 203R, 203G, and 203B.

With respect to claims 57 and 59, refer to synthesizer prism 101.

Claim 61 is rejected for the same reasons applied to already rejected claim 39.

Claim 63 is rejected for the same reasons applied to already rejected claims 4, 40 and 51.

With respect to claim 66, again refer to laser sources 206R, 206G and 206B.

With respect to claim 67, refer to column 4, lines 55 through 58.

With respect to claim 69, refer to synthesizer prism 101.

Claims 73 and 74 are met for the same reasons already applied to any of already rejected claims 1, 39, 49 and 61.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6, 11-13, 16, 17, 21-24, 26-32, 34-38, 42, 50, 53, 60, 62, 65, 68, 72, and 75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihara in view of Cipolla et al.

Mihara shows all of the elements set forth with respect to claim 3 (refer to the rejection of claim 1 under 35 USC 102(e) as anticipated by Mihara above), except for a reflective LCD. Such devices are well known in the art for use as spatial light modulators as shown by Cipolla et al. in their three color system that is analagous to

Art Unit: 2851

that shown by Mihara. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt Mihara's system for either reflective or transmissive spatial light modulators. The motivation for one having ordinary skill in the art to use either type would have been an obvious matter of design choice. Claims 50 and 62 are rejected for the same reasons.

With respect to claim 3, refer to column 2, lines 16–19 of Cipolla et al.

With respect to claim 6, Mihara makes use of three lasers or LEDs. Although either lasers or LEDs might be described as lamps, Cipolla et al. show white light source 12, such as a metal halide arc lamp for use in a three color system. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to adapt Mihara's system for use with a traditional lamp or lamps. The motivation for one having ordinary skill in the art to use one light source over another would have been an obvious matter of design choice. Variations on light sources for three color systems are well known in the art. Claims 42, 53 and 65 are rejected for the same reasons.

With respect to claim 12, the convergence lenses 203R, 203G and 203B of Mihara have magnification by definition, or in other words it is a given that a glass lens magnifies an image. Cipolla et al. also teach the use of relay lenses 50. Refer to column 3, lines 1 through 3. The degree of magnification is not discussed in either case, however it is not clear how the use of a 2X magnification as in claim 12 would patentably distinguish the claim over the prior art of record. The same is true for the

Art Unit: 2851

use of a telecentric lens or lenses. Claims 13, 68 and 75 are rejected for the same reasons given.

With respect to claims 11, 16 and 17, refer to PBS 44, PBS 46 and PBS 48 of Cipolla et al.

With respect to claim 21, neither Mihara nor Cipolla et al. specify if the image formed by their respective dichroic combiner means may be virtual, however it is not clear how changes in location of the focal point of the image distinguishes over the prior art of record. Claims 60 and 72 are rejected for the same reasons.

With respect to claim 22, the three color light modulation and polarization assembly shown by either Mihara or Cipolla et al. could be modified to meet the limitations of claim 22. The system of Mihara could be modified in view of Cipolla et al. to include three beamsplitters. Also the single light source system of Cipolla et al. could be modified to accommodate three individual light sources. Multiple light sources are well known in the art. It would have been obvious to one having ordinary skill in the art to use three light sources instead of one as, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Claim 23 is met by Mihara and Cipolla et al. wherein three color systems comprising red, green and blue modulators are disclosed.

Claim 24 is rejected for the same reasons already applied to rejected claim 6.

With respect to claim 26, refer to laser sources 206R, 206G and 206B.

With respect to claim 27, refer to column 4, lines 55 through 58.

With respect to claim 28, refer to synthesizer prism 101.

With respect to claims 29 and 34, refer to PBS 44, PBS 46 and PBS 48 of Cipolla et al.

Claims 30 and 31 are rejected for the same reasons already applied to claims 12 and 13.

With respect to claim 32 refer to synthesizer prism 101 of Mihara. Also refer to column 3, lines 32 through 62, of Cipolla et al.

Claims 35-37 are met by Figure 1 of Mihara.

Claim 38 is rejected for the same reasons already applied to rejected claim 31.

Claims 5, 7, 15, 25, 33, 34, 41, 47, 52, 58, 64, and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihara in view of Cipolla et al. and further in view of Mukawa et al.

Neither Mihara or Cipolla et al. specifically teach the use of digital micromirror devices.

With respect to claims 5, 41, 52 and 64, digital micromirror devices are well known in the art as shown by Mukawa et al. See DMD 43. It is not clear how the replacement of a DMD for either a reflective or a transmissive LCD patentably distinguishes the claim over the prior art of record. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use any of the claimed devices as an obvious matter of design choice.

The same argument applies to the replacement of any of the previously discussed light sources by means of the color filter of claims 7 and 25 (see color wheel 40 of Figure 6 of Mukawa et al.), and the replacement of an X-prism by means of the Philips prism of claims 15, 33, 34, 47, 58 and 70. All of said devices are well known in the art for use in three color systems.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Klug et al. U.S. Patent 6,330,088 B1 teaches a method and apparatus for recording one-step, full-color, full-parallax, holographic stereograms.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa J Koval whose telephone number is (703) 308-4801. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached on Monday through Thursday at (703) 308-2847. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Application/Control Number: 10/050,309
Art Unit: 2851

Page 11

MJK

A handwritten signature in black ink, appearing to read "Russell Adams", written in a cursive style.

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